For more efficiency:
flow sensors and flow meters from ifm

Automation solutions from ifm

ifm article no. 78004437 · We reserve the right to make technical changes without prior notice. · Printed in Germany on non-chlorine bleached paper. 10/22

ifm.com

ifm.com/gb/flow

Systems for flow monitoring
The optimum solution for every requirement

Contents

* All our products have CE, cULus, EAC as standard

5 YEARS Warranty on **ifm products**

Still looking for more choice? For more articles see ifm.com

Magnetic-inductive flow meters for water and emulsions

Ready for use:
The SM series measures liquids up to 900 l/min with a conductivity from 20 µS/cm and temperatures up to 90 °C.

Performance:
High accuracy, repeatability and measurement dynamics.

Versatile:
With volumetric flow, total quantity and temperature display as well as simulation mode.

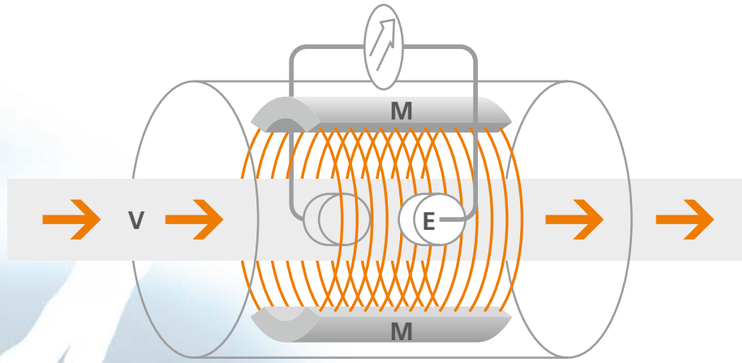
Variable:
Can be used for different flow directions.

Optimised design:
Optimised design allows parallel installation in standard splitter boxes and the omission of inlet and outlet pipe lengths.

Wear-free measuring principle

The measurement is made on Faraday's principle of induction. When a conductive medium flows through a magnetic field, a voltage proportional to the flow velocity is generated.

The voltage is tapped via electrodes and converted in the evaluation unit to a usable control signal.

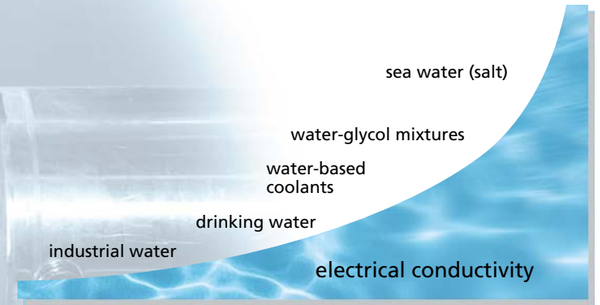


IO-Link

Broad measurement dynamics

MID Technology

KTW



Flow meter type SM

Version with display.

Pressure-resistant up to 16 bar.

Easy and intuitive to use via push-buttons.

As an option also with ISO calibration certificate, order no. ZC0052.

Good to know:
For more process connections please visit our website.

Flow meter type SM

Version without display.

Pressure-resistant up to 16 bar.

Measuring range [l/min]	Pressure rating [bar]	Process connection	Sealing material	Order no.
Display · DC · PNP / NPN · analogue · pulse · IO-Link				
0.005...3	10	G 1/4 (DN6)	FKM	**SM4000**
0.1...25	16	G 1/2 (DN15)	FKM	**SM6000**
0.2...50	16	G 3/4 (DN20)	FKM	**SM7000**
0.2...100	16	G 1 (DN25)	FKM	**SM8000**
0.005...3	10	G 1/4 (DN6)	EPDM	**SM4100**
0.1...25	16	G 1/2 (DN15)	EPDM	**SM6100**
0.2...50	16	G 3/4 (DN20)	EPDM	**SM7100**
0.2...100	16	G 1 (DN25)	EPDM	**SM8100**
Display · DC · 2 analogue outputs				
0.1...25	16	G 1/2 (DN15)	FKM	**SM6004**
0.2...50	16	G 3/4 (DN20)	FKM	**SM7004**
0.2...100	16	G 1 (DN25)	FKM	**SM8004**
DC · analogue· IO-Link				
0.1...25	16	G 1/2 (DN15)	FKM	**SM6050**
0.2...50	16	G 3/4 (DN20)	FKM	**SM7050**
0.2...100	16	G 1 (DN25)	FKM	**SM8050**

Flow meter type SM Automation

New measuring pipe design reduces pressure losses.

Clearly visible TFT display.

As an option also with ISO calibration certificate, order no. ZC0054.

Measuring range [l/min]	Sealing material	Process connection	Order no.
0.005...5	FKM	G 1/4 (DN6)	**SM4020**
0.005...5	EPDM	G 1/4 (DN6)	**SM4120**
0.05...35	FKM	G 1/2 (DN15)	**SM6020**
0.05...35	EPDM	G 1/2 (DN15)	**SM6120**
0.1...75	FKM	G 3/4 (DN20)	**SM7020**
0.1...75	EPDM	G 3/4 (DN20)	**SM7120**
0.2...150	FKM	G 1 (DN25)	**SM8020**
0.2...150	EPDM	G 1 (DN25)	**SM8120**

Flow meter type SM

Version for high volumetric flows with empty pipe detection.

Measuring range [l/min]	Pressure rating [bar]	Process connection	Sealing material	Order no.
Display · DC · PNP / NPN · analogue · pulse · IO-Link				
5...300	16	G 2 (DN50)	FKM	**SM9000**
5...600	16	G 2 (DN50)	FKM	**SM2000**
5...900	16	G 2 (DN50)	FKM	**SM0510**
5...300	16	G 2 (DN50)	EPDM	**SM9100**
5...600	16	G 2 (DN50)	EPDM	**SM2100**
DC · 2 analogue outputs Display ·				
5...300	16	G 2 (DN50)	FKM	**SM9004**
5...600	16	G 2 (DN50)	FKM	**SM2004**

Vortex flow meters for water with and without conductivity

Display electronically rotatable in steps of 90°

Robust:
Long-term stability thanks to fixed components.

Combined measurement:
Flow meter with integrated temperature measurement.

Versatile:
Can be used for water with and without conductivity.

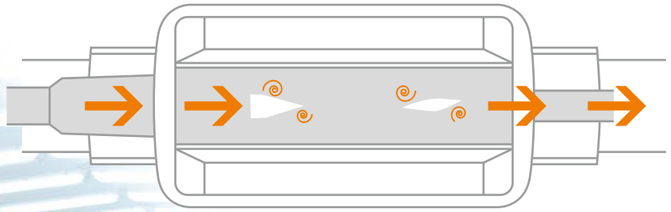
Individual:
Devices with and without display.

Application-specific:
Ideal for use in the automotive and solar industries.

Long-term stable measurement

The Vortex measuring principle is a proven method for measuring the volumetric flow of water-based liquids. Behind a blunt body, the flowing medium generates swirling vortices. The frequency of these swirling vortices is detected by a piezoceramic measuring element. The frequency is a measure for the flow velocity for that matter.

The volumetric flow can be calculated with the flow velocity and the defined pipe diameter. The measurement results are independent of pressure and temperature fluctuations of the medium.



IO-Link

High-grade stainless steel

IP 65

Rotatable connection

4...20 mA

IP 65
IP 67

Flow meters type SV

Electronically rotatable multi-colour display.

Pressure-resistant up to 12 bar.

Medium temperature -10...90 °C.

Rotatable process connection.

Measuring range [l/min]	Pressure rating [bar]	Process connection	Sealing material	Order no.
DC · PNP / NPN · frequency · IO-Link · analogue				
1...20	up to 12	G 1/2 (DN8)	FKM	**SV4200**
1...20	up to 12	Rc 1/2 (DN8)	FKM	**SV4500**
2...40	up to 12	G 1/2 (DN10)	FKM	**SV5200**
2...40	up to 12	Rc 1/2 (DN10)	FKM	**SV5500**
5...100	up to 12	G 3/4 (DN20)	FKM	**SV7200**
5...100	up to 12	Rc 3/4 (DN20)	FKM	**SV7500**
DC · 2 analogue outputs				
1...20	up to 12	G 1/2 (DN8)	FKM	**SV4204**
1...20	up to 12	Rc 1/2 (DN8)	FKM	**SV4504**
2...40	up to 12	G 1/2 (DN10)	FKM	**SV5204**
2...40	up to 12	Rc 1/2 (DN10)	FKM	**SV5504**
5...100	up to 12	G 3/4 (DN20)	FKM	**SV7204**
5...100	up to 12	Rc 3/4 (DN20)	FKM	**SV7504**

Good to know:
For more process connections please visit our website.

Flow meters type SV

Version without display.

Medium temperature -40...100 °C.

Integrated temperature measurement.

Voltage supply 8..33 V.

Measuring range [l/min]	Pressure rating [bar]	Process connection	Sealing material	Order no.
DC · 1 analogue output · PT1000				
0.5...10	up to 12	G 1/2 (DN6)	FKM	**SV3050**[1)]
0.9...15	up to 12	G 1/2 (DN8)	FKM	**SV4050**
1.8...32	up to 12	G 3/4 (DN10)	FKM	**SV5050**
3.5...50	up to 12	G 3/4 (DN15)	FKM	**SV6050**
5...85	up to 12	G 1 (DN20)	FKM	**SV7050**
9...150	up to 12	G 1 1/4 (DN25)	FKM	**SV8050**
0.5...10	up to 12	G 1/2 (DN6)	EPDM	**SV3150**[1)]
0.9...15	up to 12	G 1/2 (DN8)	EPDM	**SV4150**
1.8...32	up to 12	G 3/4 (DN10)	EPDM	**SV5150**
3.5...50	up to 12	G 3/4 (DN15)	EPDM	**SV6150**
5...85	up to 12	G 1 (DN20)	EPDM	**SV7150**
9...150	up to 12	G 1 1/4 (DN25)	EPDM	**SV8150**

[1)] no temperature measurement

Mechatronic flow sensors for water and emulsions

Fast and accurate:
Precise detection with a response time of ≤ 10 ms.

Long-term stability:
Guaranteed 10 million switching cycles.

Independent:
No influence by pressure and temperature fluctuations.

Space-saving:
No laminar flow required.

Variable:
Installation independent of orientation.

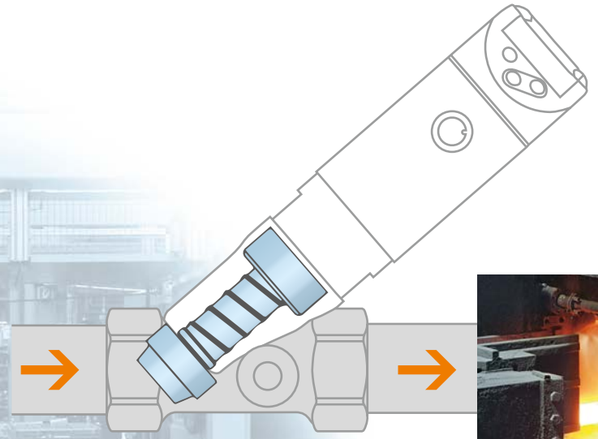
Combined measurement:
Integrated temperature measurement.

Fast detection

A spring-based piston is lifted by the flowing medium.
The piston position is monitored via a magnetic-field sensor and is output as an analogue signal.

The spring resistance forces the piston to return to its original position with decreasing flow. This allows an orientation-independent installation of the flow sensor. Backflow is prevented.

For installation in the pipe no laminar flow is required as is the case with other measuring principles.
The sensor features very fast response times ≤ 10 ms.



IO-Link

Broad measurement dynamics

4...20 mA

Vibration and shock resistant

IP 65
IP 67

Mechatronic flow meters type SBY

Version with display.

Sensing head rotatable by 360°.

Easy switch-point setting via display.

3-pushbutton operating concept.

Version without display and without temperature measurement.

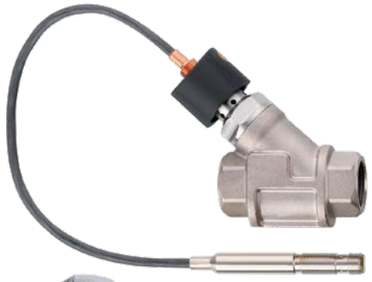
Measuring range [l/min]	Pressure rating [bar]	Process connection	Order no.	Process connection	Order no.
Display · DC · PNP / NPN · analogue · frequency · IO-Link					
0.3...15	40	Rp 3/4 (DN20)	**SBY232**	G 1/2 (DN15)	**SBG232**
0.5...25	40	Rp 3/4 (DN20)	**SBY233**	G 1/2 (DN15)	**SBG233**
1...50	40	Rp 3/4 (DN20)	**SBY234**	G 1/2 (DN15)	**SBG234**
2...100	25	Rp 1 (DN25)	**SBY246**	G 3/4 (DN20)	**SBG246**
4...200	25	Rp 1 1/2 (DN40)	**SBY257**	G 1 1/4 (DN32)	**SBG257**
DC · 1 analogue output					
0.3...15	40	Rp 3/4 (DN20)	**SBY432**	G 1/2 (DN15)	**SBG432**
1...25	40	Rp 3/4 (DN20)	**SBY433**	G 1/2 (DN15)	**SBG433**
2...50	40	Rp 3/4 (DN20)	**SBY434**	G 1/2 (DN15)	**SBG434**
4...100	25	Rp 1 (DN25)	**SBY446**	G 3/4 (DN20)	**SBG446**
8...200	25	Rp 1 1/2 (DN40)	**SBY457**	G 1 1/4 (DN32)	**SBG457**
DC - PNP					
0.2...4	80	Rp 1/2 (DN15)	**SBY321**		
1...15	40	Rp 3/4 (DN20)	**SBY332**	G 1/2 (DN15)	**SBG332**
1...25	40	Rp 3/4 (DN20)	**SBY333**	G 1/2 (DN15)	**SBG333**
2...50	25	Rp 3/4 (DN25)	**SBY334**	G 1/2 (DN20)	**SBG334**
5...100	25	Rp 1 (DN40)	**SBY346**	G 3/4 (DN32)	**SBG346**
20...200	25	Rp 1 1/2 (DN40)	**SBY357**	G 1 1/4 (DN32)	**SBG357**

Variants with NPT thread also available.

Mechatronic flow meters type SBT

Version without display.

For high temperatures up to 180 °C.



Mechatronic flow meters type SBZ and SBU

Version without display.

For high pressures up to 200 bar.

High sensitivity with small flow rates.

Measuring range [l/min]	Pressure rating [bar]	Process connection	Order no.
High temperature up to 180 °C			
DC · 1 analogue output			
0.3...25	30	Rp 3/4 (DN20)	**SBT633**
0.6...50	30	Rp 3/4 (DN20)	**SBT634**

Measuring range [l/min]	Pressure rating [bar]	Process connection	Order no.
High pressure up to 200 bar			
DC · 1 analogue output			
0.3...25	200	G 1/2 (DN15)	**SBU623**
0.3...50	200	G 1/2 (DN15)	**SBU624**
0.3...75	200	G 1/2 (DN15)	**SBU625**
DC - PNP			
0.3...25	200	G 1/2 (DN15)	**SBU323**
0.3...50	200	G 1/2 (DN15)	**SBU324**
Display · DC · PNP / NPN · analogue · frequency · IO-Link			
1...50	200	G 1/2 (DN15)	**SBZ224**

Mechatronic flow sensors for oils of different viscosities

Fast and accurate:
High measuring accuracy of +- 5% of the final value and a response time of ≤ 10 ms.

Long-term stability:
Guaranteed 10 million switching cycles.

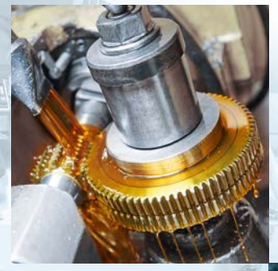
Independent:
No influence by pressure and temperature fluctuations.

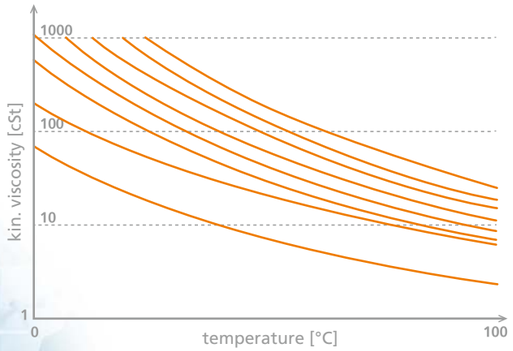
Space-saving:
No laminar flow required.

Variable:
Installation independent of orientation.

Combined measurement:
Integrated temperature measurement.

Temperature-independent measurement.
In case of temperature fluctuations oils change their physical properties such as viscosity. To provide precise measured values despite this, the flow meters type SB feature an integrated temperature compensation.





IO-Link
Broad measurement dynamics
4...20 mA
Vibration and shock resistant
IP 65
IP 67

Mechatronic flow meters type SB
Version with display.
High pressure rating.
Temperature-compensated.

Measuring range [l/min]	Pressure rating [bar]	Process connection	Oil viscosity [cSt] / [mm²/s]	Order no.
DC · PNP / NPN · analogue · frequency · IO-Link				
0.3...15	80 (100)[1]	G 3/4 (DN20)	10	**SB1232**
0.5...25	80 (100)[1]	G 3/4 (DN20)	10	**SB1233**
1...50	80 (100)[1]	G 3/4 (DN20)	10	**SB1234**
2...100	80 (100)[1]	G 1 (DN25)	10	**SB1246**
4...200	50 (63)[1]	G 1 1/2 (DN40)	10	**SB1257**
0.3...15	80 (100)[1]	G 3/4 (DN20)	32	**SB9232**
0.5...25	80 (100)[1]	G 3/4 (DN20)	32	**SB9233**
0.3...15	80 (100)[1]	G 3/4 (DN20)	46	**SB2232**
0.5...25	80 (100)[1]	G 3/4 (DN20)	46	**SB2233**
1...50	80 (100)[1]	G 3/4 (DN20)	46	**SB2234**
2...100	80 (100)[1]	G 1 (DN25)	46	**SB2246**
4...200	50 (63)[1]	G 1 1/2 (DN40)	46	**SB2257**

[1] at max. 70 °C

Measuring range [l/min]	Pressure rating [bar]	Process connection	Oil viscosity [cSt] / [mm²/s]	Order no.
DC · PNP / NPN · analogue · frequency · IO-Link				
0,3...15	80 (100)[1]	G 3/4 (DN20)	68	**SB3232**
0,5...25	80 (100)[1]	G 3/4 (DN20)	68	**SB3233**
1...50	80 (100)[1]	G 1 (DN25)	68	**SB3244**
2...100	80 (100)[1]	G 1 (DN25)	68	**SB3246**
4...200	50 (63)[1]	G 1 1/2 (DN40)	68	**SB3257**
0,6...15	80 (100)[1]	G 3/4 (DN20)	150	**SB5242**
1...50	80 (100)[1]	G 1 (DN25)	150	**SB5244**
2...100	50 (63)[1]	G 1 1/2 (DN40)	150	**SB5256**
0,3...15	80 (100)[1]	G 3/4 (DN20)	5	**SB0301**
0,6...15	80 (100)[1]	G 1 (DN25)	220	**SB6242**
1...25	80 (100)[1]	G 1 (DN25)	220	**SB6243**
0,6...15	80 (100)[1]	G 1 (DN25)	320	**SB7242**
1...25	80 (100)[1]	G 1 (DN25)	320	**SB7243**
2...50	80 (100)[1]	G 1 (DN25)	320	**SB7244**
4...100	50 (63)[1]	G 1 1/2 (DN40)	320	**SB7256**
8...200	50 (63)[1]	G 1 1/2 (DN40)	320	**SB7257**

[1] at max. 70 °C

For the mounting plate accessories for type SB please see pages 26 - 27.

Good to know – programme for flow calculation:

Scan QR code and calculate flow velocity, flow rate and internal pipe diameter.

Ultrasonic flow meter sensor for ultrapure water and hydrous media (90%)

Precise:
Accurate flow measurement of applications with ultrapure water and water.

Component-free stainless steel measuring pipe:
Offers high media resistance and permanent ingress resistance and reduces maintenance.

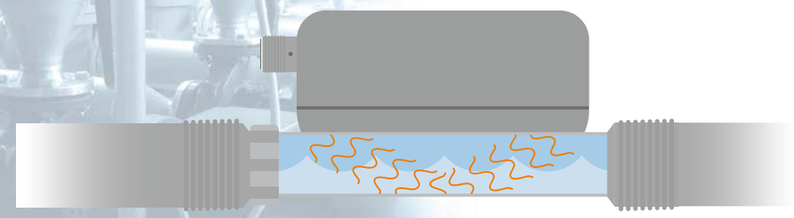
Transparency:
Conclusions about possible contamination or process changes are possible on the basis of the signal strength provided.

Operating status LED:
Signals the sensor status to the user according to Namur NE107.

Display:
Maximum ease of use and good visualisation.

Ultrasonic measuring principle

The ultrasonic flow meters of the SU series consist of two transducers that can transmit and receive sound pulses. Transducer A sends a pulse in the direction of flow which is reflected by the medium on the opposite pipe wall and redirected to the receiver (transducer B). The dwell time in the medium is measured. Then a pulse is sent in the opposite direction.
The measuring device measures the time difference and calculates the flow rate.



IO-Link

LED Display

IP 69 K

Flow meter type SU

3-pushbutton operating concept.

Guided set-up possible.

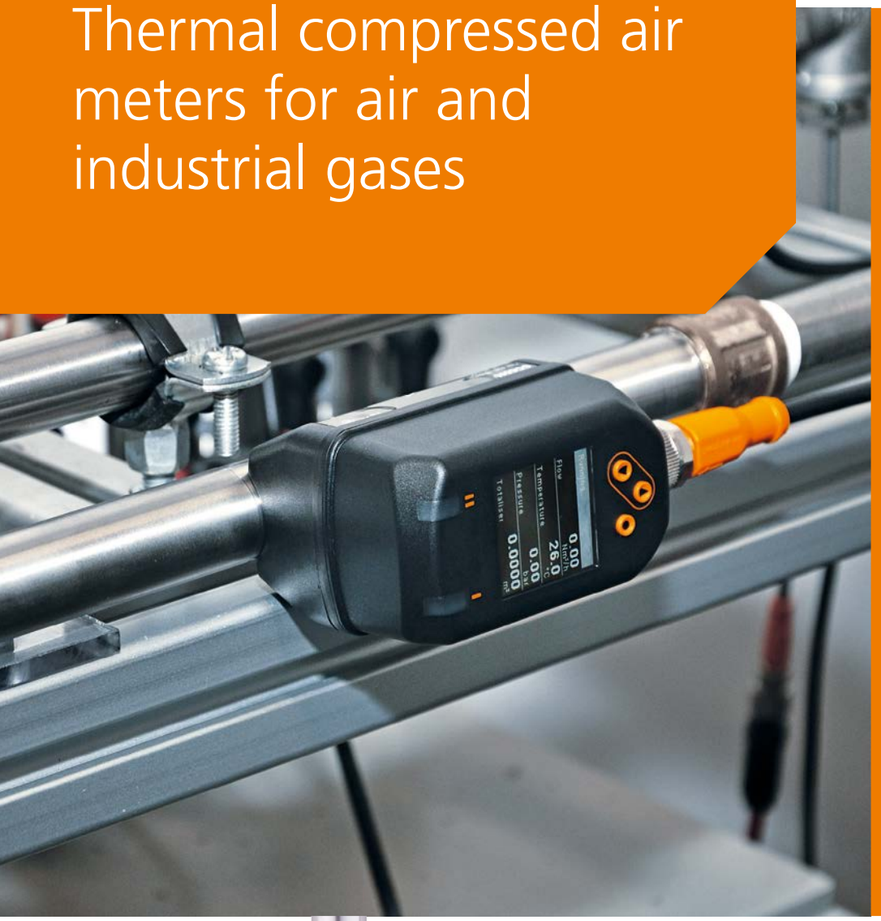
Available in various nominal widths.

Technical data and prices? ifm.com

Measuring range		Pressure rating [bar]	Process connection	Order no.
[l/min]	[gpm]			
DC · PNP / NPN · analogue · IO-Link				
1...240	-	100	G 1 (DN25)	**SU8020**
5...1.000	-	100	G 2 (DN50)	**SU2020**
1...240	0,25...63,4	100	G 1 (DN25)	**SU8021**
5...1.000	1,32...264,18	100	G 2 (DN50)	**SU2021**
1...240	0,25...63,4	100	1 (NPT)	**SU8621**
5...1.000	1,32...264,18	100	2 (NPT)	**SU2621**
1...240	-	100	G 1 1/4 (DN32)	**SU9020**
1...240	0,25...63,4	100	G 1 1/4 (DN32)	**SU9021**
1...240	0,25...63,4	100	1 1/4 (NPT)	**SU9621**

Learn more about the SU Puresonic here.

Thermal compressed air meters for air and industrial gases



Precise:
High precision and repeatability.

Increased energy efficiency:
Thanks to integrated leakage monitoring, energy costs can be reduced.

Versatile:
Integrated totaliser for measuring the total consumption. Additional temperature and pressure measurement.

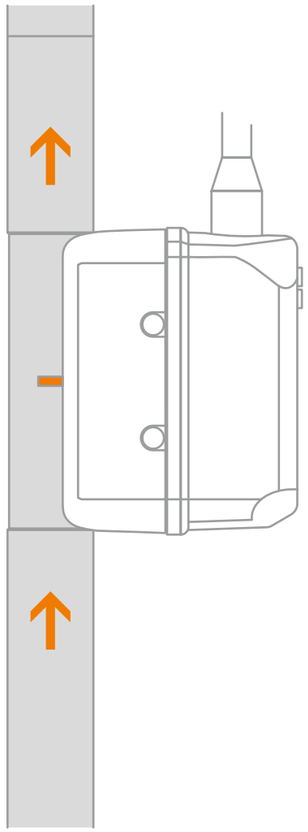
Specific:
Versions for the measurement of industrial gases such as Ar, N_2, CO_2 or helium.

Variable:
Versions that are mounted on a fixed laminar pipe or version for an adjustable pipe diameter without fixed pipe.

Precise detection of even minute quantities

The compressed air meter uses the calorimetric measuring principle to determine the standard volume flow to ISO 2533.

The broad measurement dynamics enables reliable detection of minute quantities, e.g. leakage. High accuracy and repeatability are ensured by the integration of the measuring elements into a defined pipe length.



IO-Link · Broad measurement dynamics · IP 65 IP 67 · Energie-effizient

Compressed air meter type SD with TFT display

Four process values: flow, pressure, temperature and overall consumption.

TFT display with four different individually adjustable graphic layouts.

As an option also with ISO calibration certificate, order no. ZC0020.

DAkkS calibration certificate, order no. ZC0075.

Measuring range [m³/h]	Pressure rating [bar]	Process connection	Order no.
Defined pipe length for compressed air in industrial use			
DC · PNP / NPN · analogue · pulse · IO-Link			
0.05...15	16	G 1/4 (DN8)	**SD5500**
0.25...75	16	R 1/2 (DN15)	**SD6500**
0.8...225	16	R 1 (DN25)	**SD8500**
1.4...410	16	R 1 1/2 (DN40)	**SD9500**
2.5...700	16	R 2 (DN50)	**SD2500**

Good to know:
For more process connections please visit our website.

Precise compressed air measurement for efficient energy management

Following the EU directive on energy efficiency DIN EN ISO 50001, all member states have undertaken to achieve energy savings. The requirement for obtaining energy tax reductions is the implementation of an energy management system.

Combining the new SD compressed air meter with regular DAkkS calibrations provides the optimum basis for this.

Compressed air meter with industrial gases

Four gas characteristics and four measuring parameters (current and total volumetric flow, pressure, temperature) turn the SD into an all-in-one solution.

Measuring range [m³/h]	Pressure rating [bar]	Process connection	Order no.
Defined pipe length for technical gases Ar, N_2, CO_2, air			
DC · PNP / NPN · analogue · pulse · IO-Link			
0.05...15	16	G 1/4 (DN8)	**SD5600**
0.25...75	16	R 1/2 (DN15)	**SD6600**
0.8...225	16	R 1 (DN25)	**SD8600**
Defined pipe length for technical gases; helium			
DC · PNP / NPN · analogue · pulse · IO-Link			
0.05...5	16	G 1/4 (DN8)	**SD5800**
0.1...10	16	R 1/2 (DN15)	**SD6800**

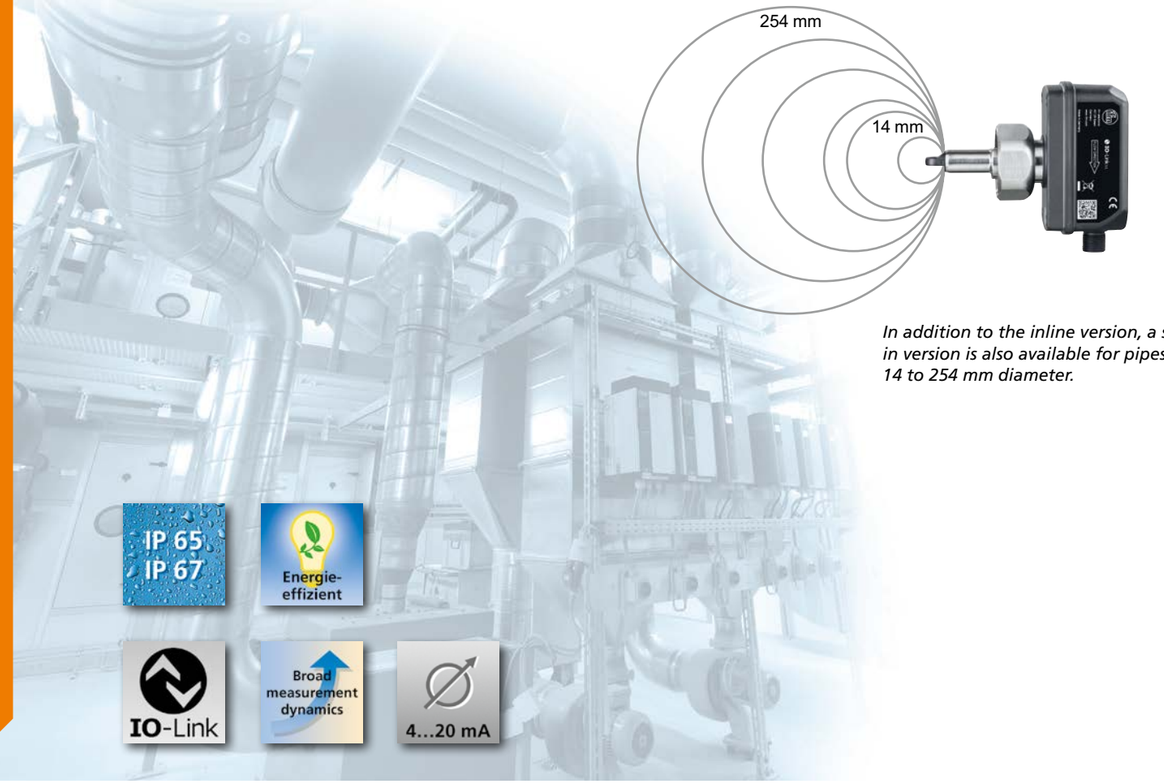
Thermal compressed air meters for efficient compressed air management

Precise:
High accuracy, repeatability and measurement dynamics.

Increased energy efficiency:
Improvement of energy efficiency via leakage monitoring.

Overview:
Exact allocation of energy costs due to precise consumption measurement.

All-in-one:
Integrated totaliser for measuring the total consumption. Additional temperature and pressure measurement.



In addition to the inline version, a screw-in version is also available for pipes from 14 to 254 mm diameter.

Compressed air meters type SDG

Four process values: flow, pressure, temperature and overall consumption.

TFT display with four different individually adjustable graphic layouts.

Easy to use via 3 pushbuttons.

Easy parameter setting via IO-Link.

Offering a wide portfolio of precise inline sensors from DN8 to DN250, ifm covers the complete range of applications.

Measuring range [m³/h]	Medium	Process connection	Order no.
Defined pipe length for compressed air in industrial use			
DC · PNP / NPN · analogue · pulse · IO-Link			
8...2011	air	flange (DN65)	**SDG350**
12...2769	air	flange (DN80)	**SDG450**
19...4667	air	flange (DN100)	**SDG550**
43...10320	air	flange (DN150)	**SDG750**
73...17480	air	flange (DN200)	**SDG850**

Compressed air meter type SD1540

Adjustable internal pipe diameter of 14-254 mm.

Measuring range [Nm³/h]	Medium	Process connection	Order no.
Defined pipe length for compressed air in industrial use			
DC · PNP / NPN · analogue · pulse · IO-Link			
0,3...26260	air	G 1	**SD1540**

Choosing the right sensor:

Article	SDG	SD1540
Accuracy	± (3 % MV + 0.3 % VMR)	± (6 % MV + 0.6 % VMR)

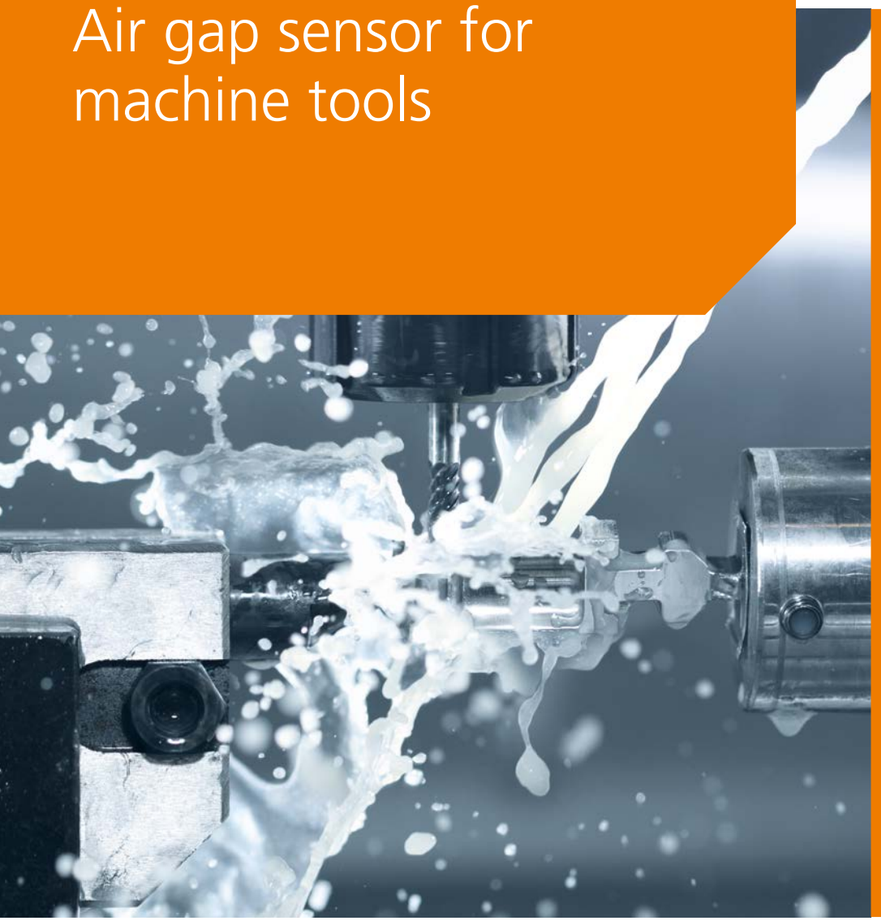
When choosing the right sensor, accuracy is an important factor.

With a consumption of 2750 m3/h (DN80) to be monitored, 3% measurement deviation corresponds to ± 82.5 m3/h.

One undetected leakage due to measurement uncertainty corresponds to a leakage of 5 mm diameter and thus compressed air costs of approx. 6,000 euros per year.

Due to its high accuracy, the SDG can detect even the smallest leaks and reduce compressed air costs.

Air gap sensor for machine tools



Precise:
Output of the air gap as an absolute value with repeat accuracy in the micrometre range.

Reliable:
Accurate values at all times thanks to the pressure-compensated measuring principle.

Overview:
Gap value, flow and pressure – all information at a glance.

Robust:
The self-cleaning measuring channel even withstands the purge air pressure.

Simple:
Easy teaching of target status with just one click.

Using both flow and pressure measurements, the SDP air gap sensor measures the distance in absolute distance values [mm]: the closer a workpiece is to a measuring nozzle, the lower the quantity of air that flows through the air gap between the workpiece and the measuring nozzle. This makes it possible to secure the position of the workpiece and to clearly detect a zero gap or a clogged nozzle.

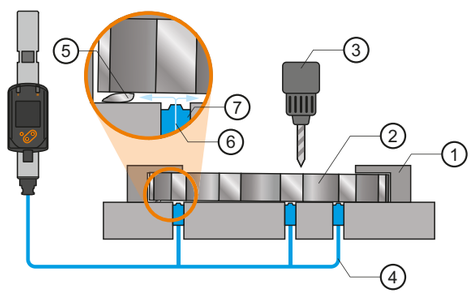
Flow meter type SDP

Zero gap detection.

3-pushbutton operating concept.

High pressure rating.

Measuring range [µm]	Process connection	Order no.
DC · PNP / NPN · analogue · IO-Link		
0...400	G 1/4 (DN8)	**SDP110**



1) Jaw
2) Toothed wheel
3) Drill
4) Compressed air line
5) Chip
6) Air
7) Air nozzle

Learn more about the air gap sensor here.

Compact thermal flow sensors for water, emulsions and air

Robust and clean:
Wetted part materials: high-grade stainless steel, titanium or Hastelloy.

Everything at a glance:
Flow display by means of 10 LED bar graph, measured value output in %.

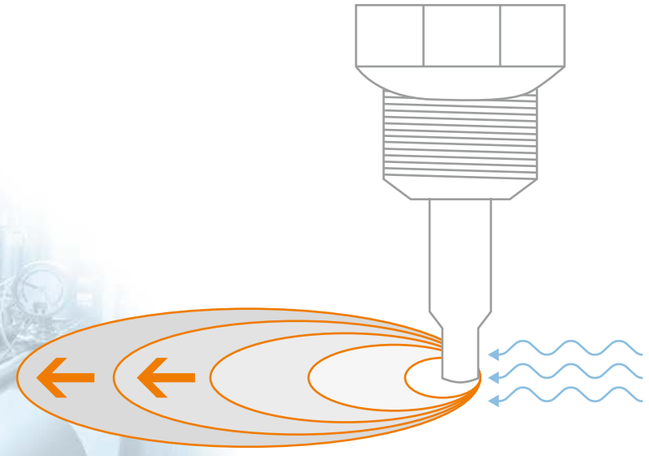
Selectable:
Versions with different outputs.

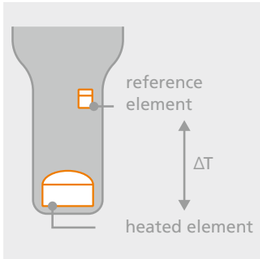
Flexible:
Variable probe lengths.

Measuring principle for liquids and gases

The thermal flow detection is based on the heat dissipation of flowing media (liquids and gases).

In principle, the sensor consists of a heating element and a temperature probe (reference element). The temperature difference between these two elements is a measure for the flow velocity.





IO-Link

High-grade stainless steel

LED Display

IP 67

IP 69 K

Flow sensors type SI

ATEX versions.

Robust housing.

Easy to set.

Pressure rating [bar]	Process connection / probe length [mm]	Operating voltage [V]	IO-Link	Order no.
Machine tool applications				
DC · PNP · 1 switching output				
30	M18 nut / 45	24 DC	–	**SI5000**
300	M18 nut / 45	24 DC	•	**SI5010**
DC · PNP · 2 switching outputs				
300	M18 nut / 45	24 DC	•	**SI5002**
DC · 1 analogue output				
300	M18 nut / 45	24 DC	–	**SI5004**
AC · 1 relay output				
300	M18 nut / 45	85...265 AC	–	**SI5006**
DC · PNP · 1 switching output flow and 1 switching output temperature				
300	M18 nut / 45	24 DC	•	**SI5007**
DC · PNP · 1 switching output · ATEX category 3D / 3G				
30	M18 nut / 45	24 DC	–	**SI500A**

Flow sensors type SI

Modular adaptation for hygienic applications.

Protection rating IP 67 and IP 69K.

Pressure rating [bar]	Process connection / probe length [mm]	Operating voltage [V]	Order no.
Hygienic applications			
DC · PNP · 1 switching output			
30	G 1 Aseptoflex Vario / 20	24 DC	**SI6600**
30	G 1 Aseptoflex Vario / 38	24 DC	**SI6700**
30	G 1 Aseptoflex Vario / 55	24 DC	**SI6800**

For the process adapter accessories please see pages 26 - 27.

Thermal flow sensors for water, emulsions and air

Space-saving:
Flow sensors for connection to separate evaluation unit.

Robust and clean:
Wetted part materials: high-grade stainless steel, titanium or ceramics.

Flexible:
Variable probe lengths.

Resistant:
High pressure rating.

Good to know: titanium tips are particularly suitable for aggressive media.

Flow sensors type SF for connection to evaluation units SR5900 SR5906 SR0150 SR0151 SN0150 SN0151

Pressure rating [bar]	Process connection / probe length [mm]	Medium temperature [°C]	Wetted parts materials	Order no.	
Connection via M12 connector					
30	clamping ring / 106	-25...80	high-grade stainless steel	**SF6201**	
30	clamping ring / 191	-25...80	high-grade stainless steel	**SF6200**	
30	M18 nut / 45	-25...80	high-grade stainless steel	**SF0537**	
300	M18 nut / 45	-25...80	high-grade stainless steel	**SF5200**	
30	M18 nut / 55	-25...80	high-grade stainless steel	**SF5201**	
100	M18 nut / 45	-25...80	titanium	**SF5700**	
100	M18 nut / 63	-25...80	titanium	**SF5701**	
100	M18 nut / 93	-25...80	titanium	**SF5702**	
100	M18 nut / 143	-25...80	titanium	**SF5703**	
100	M18 nut / 243	-25...80	titanium	**SF5704**	
30	G 1/4 / 12	5...70	ceramics	**SF2405**	
30	G 1/2 / 30	5...70	ceramics	**SF3405**	
Connection cable				**6 m**	**16 m**
300	M18 nut / 45	0...120	high-grade stainless steel	**SF5300**	–
300	M18 nut / 45	-25...80	high-grade stainless steel	**SF5350**	–
100	M18 nut / 45	-25...80	titanium	**SF5800**	–
30	G 1/4 / 12	5...70	ceramics	**SF2410**	**SF0540**
30	G 1/2 / 30	5...70	ceramics	**SF3410**	–

Flow sensors type SF for connection to evaluation units SR2301 SN2301 SN2302

For ATEX applications.

Pressure rating [bar]	Process connection	Medium temperature [°C]	Wetted parts materials	ATEX category	Order no.
ATEX applications					
Connection via M12 connector					
30	M12	-20...70	high-grade stainless steel	2G	**SF120A**
30	G 1/4	-20...70	high-grade stainless steel	2G	**SF220A**
Connection cable, 6 m					
300	M12	-20...60	high-grade stainless steel	1G / 2G	**SF111A**
30	M12	-20...70	high-grade stainless steel	2G	**SF121A**
300	G 1/4	-20...60	high-grade stainless steel	1G / 2G	**SF211A**
30	G 1/4	-20...70	high-grade stainless steel	2G	**SF221A**
300	G 1/2	-20...60	high-grade stainless steel	1G / 2G	**SF311A**
30	G 1/2	-20...70	high-grade stainless steel	2G	**SP321A**[1]

[1] connection only to the evaluation unit

For evaluation units please see pages 24 - 25.

Evaluation units for thermal flow sensors

Space-saving:
Separate evaluation units for connection of flow sensors.

Clear:
Flow indication by means of LED function display.

Selectable:
Versions with different outputs.

Comprehensive:
Integrated flow, temperature and wire monitoring.

Evaluation unit for flow sensors type SF

Relay energises in case of flow and de-energises in case of wire break.

Relay temperature	Nominal voltage [V]	Order no.	For sensor type
Field installation			
–	24 DC	**SR5900**	SFxxx M12 connector
–	90...240 AC	**SR5906**	
Control cabinet installation			
energises	24 DC	**SR0150**[1)]	SFxxx
energises	24 DC	**SR0151**[2)]	
energises	90...240 AC	**SN0150**	
de-energises	90...240 AC	**SN0151**	

[1)] temperature range 0...80 °C [2)] temperature range 40...120 °C

Evaluation unit for ATEX flow sensors type SF

Relay energises in case of flow and de-energises in case of wire break.

Type SR307A with 4-wire technology and 5 setting options (water, air, glycol, oils of low and high viscosity).

Relay temperature	Operating voltage [V]	Order no.	For sensor type
Control cabinet installation, for ATEX sensors			
–	24 DC	**SR2301**	SFxxxA
–	230 AC	**SN2304**	
–	110 AC	**SN2302**	
de-energises	24 DC	**SR307A**	SP321A

For sensors please see pages 18 - 19.

Thermal flow sensors for water, emulsions and air

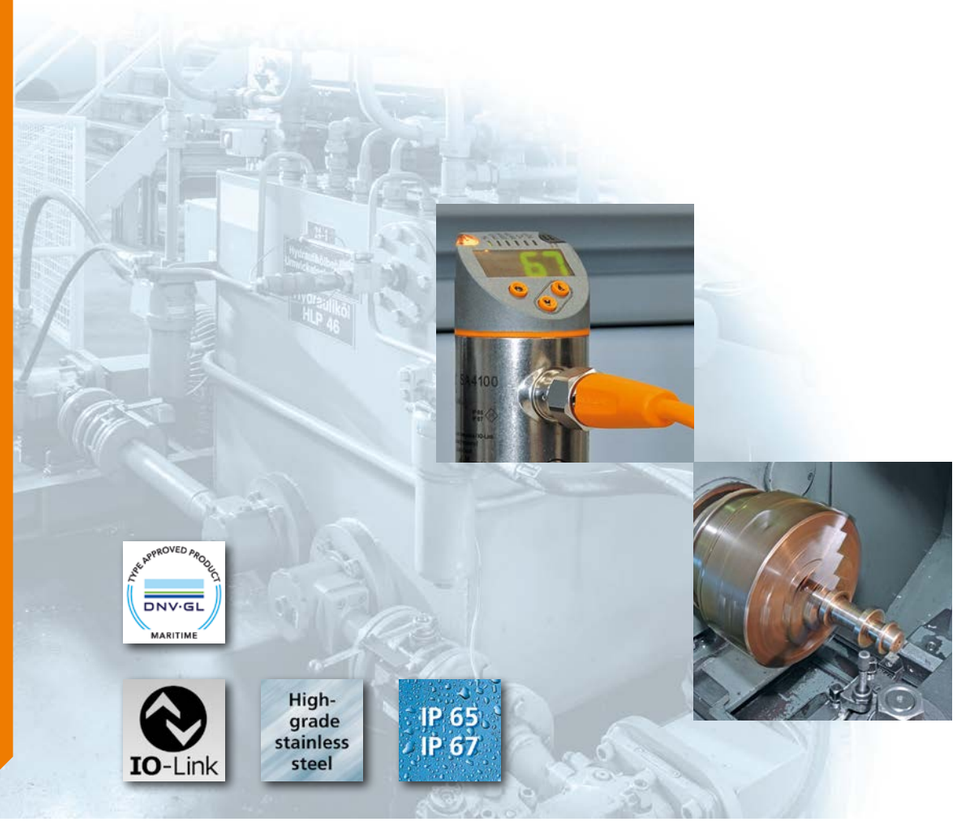
Robust:
The full metal probe is resistant to aggressive media.

Flexible:
Adjustable internal pipe diameter of 15...400 mm.

Variable:
Measured value output in %, m/s l/min, m³/h and °C.

Combined measurement:
Integrated temperature measurement.

Unambiguous:
Red/green colour change for process values.



Flow sensor type SA

Sensing head rotatable by 345°.

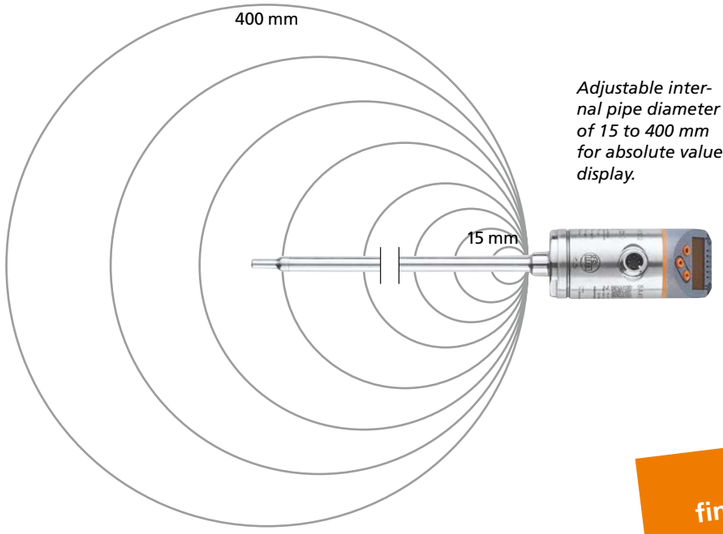
2 switching outputs.

Easy switch-point setting via display.

3-pushbutton operating concept.

Fast response time for flow and temperature measurement.

Pressure rating [bar]	Process connection / probe length [mm]	Medium temperature [°C]	Order no.
Defined pipe length for liquid media			
DC · PNP / NPN · analogue · frequency · IO-Link			
100	M18 nut / 45	-20...90	**SA5000**
100	G 1/2 / 19.2	-20...90	**SA2000**
50	Ø 8 mm / 100	-20...100	**SA4100**
50	Ø 8 mm / 200	-20...100	**SA4300**
DC · 2 analogue outputs			
100	M18 x 1.5 internal thread	-20...90	**SA5004**
100	G 1/2 / 19.2	-20...90	**SA2004**
50	Ø 8 mm / 100	-20...100	**SA4104**
50	Ø 8 mm / 200	-20...100	**SA4304**
Defined pipe length for air			
100	M18 x 1.5 internal thread	-20...90	**SA5020**
50	Ø 8 mm / 100	-20...100	**SA4120**
50	Ø 8 mm / 100	-20...100	**SA4320**



Adjustable internal pipe diameter of 15 to 400 mm for absolute value display.

Want to find the suitable connector? ifm.com

Thermal airflow monitors for air ducts

Reliable:
High protection rating for use in ventilation systems in building automation.

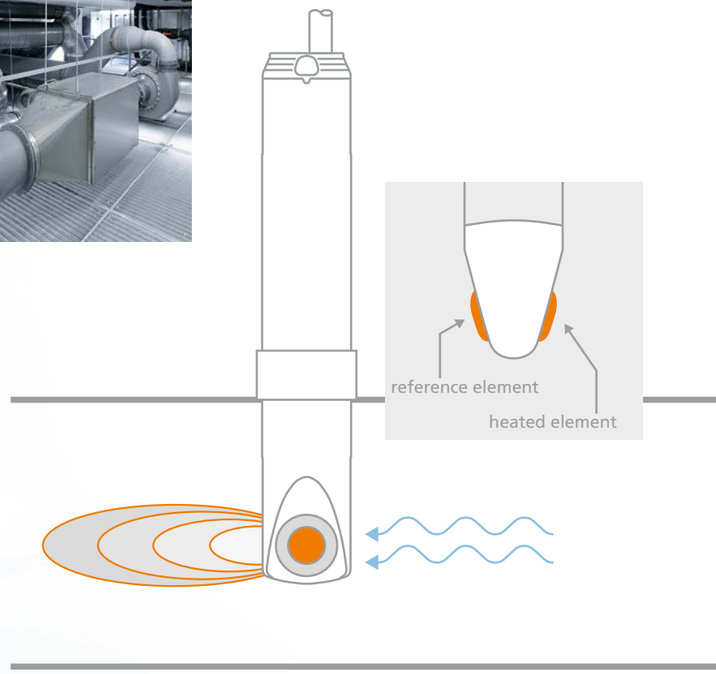
Easy to install:
Easy setting of the requested immersion depth.

Versatile:
Signal output via potential-free relay contacts or precisely via analogue output.

Simple:
Switch point setting via potentiometer.

Thermal measuring principle

The airflow monitor SL is mainly used in ventilation units of building management systems to monitor sufficient air supply. It uses the thermal measuring principle. The sensor consists of a heating element and a temperature probe (reference element). The temperature difference between these two elements is a measure for the flow velocity.



IP 65

4...20 mA

AC / DC

Technical data and prices?
ifm.com

Supplied accessories
Mounting clamp for airflow monitor

Thermal airflow monitor type SL

Materials housing: PBT sensing face: titanium.

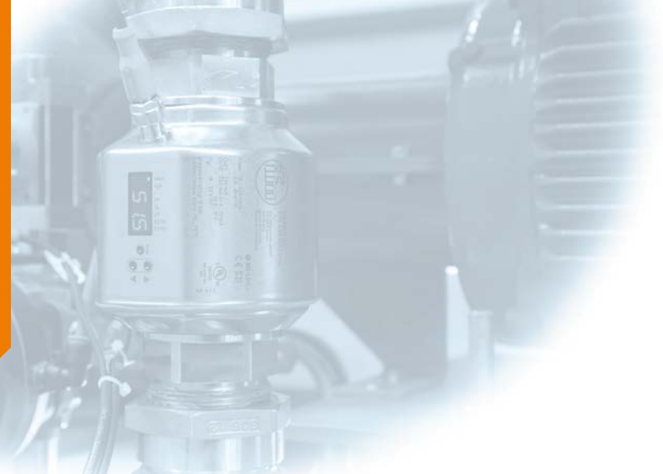
Status LEDs.

Process connection: Ø 23 mm.

Setting range [cm/s]	Ambient temperature [°C]	Operating voltage [V]	Connection cable [m]	Order no.
AC · relay				
100...1000	-10...50	< 24 AC	2	**SL0201**
AC / DC · relay				
100...1000	-10...50	80...250 AC / 90...250 DC	6	**SL0105**
100...1000	-10...50	80...250 AC / 90...250 DC	2	**SL0301**
DC · relay				
100...1000	-10...50	24 DC	2	**SL5105**
100...1000	-10...50	24 DC	2	**SL5101**[1)]
100...1000	-10...50	24 DC	6	**SL5102**
DC · analogue				
200...3000	-10...40	24 DC	2	**SL5204**
200...2000	-10...50	24 DC	2	**SL5201**

[1)] with power-on delay time

Process adapters and mounting accessories for flow sensors and flow meters



Process adapters for type SM

Process connection	Device connection	Material	Order no.	For sensor type
R 1/2	G 1/2	high-grade stainless steel	**E40199**	SM6xxx
G 1/2	G 1/2	high-grade stainless steel	**E40213**	SM6xxx
G 3/4	G 1/2	high-grade stainless steel	**E40189**	SM6xxx
R 1/2	G 3/4	brass	**E40151**	SM7xxx
R 1/2	G 3/4	high-grade stainless steel	**E40178**	SM7xxx
G 1/2	G 3/4	high-grade stainless steel	**E40214**	SM7xxx
G 3/4	G 3/4	high-grade stainless steel	**E40216**	SM7xxx
R 1/2	G 1	brass	**E40152**	SM8xxx
R 3/4	G 1	brass	**E40153**	SM8xxx
R 1/2	G 1	high-grade stainless steel	**E40179**	SM8xxx
R 3/4	G 1	high-grade stainless steel	**E40180**	SM8xxx
G 3/4	G 1	high-grade stainless steel	**E40215**	SM8xxx
G 1	G 1	high-grade stainless steel	**E40217**	SM8xxx
1,5" Victaulic	G 2	high-grade stainless steel	**E40227**	SM9xxx, SM2xxx
R 2	G 2	high-grade stainless steel	**E40231**	SM9xxx, SM2xxx
G 1 1/2	G 2	high-grade stainless steel	**E40230**	SM9xxx, SM2xxx
Flange DN50	G 2	high-grade stainless steel	**E40240**	SM9xxx, SM2xxx

Grounding clamp for type SM

Description	Material	Order no.	For sensor type
Grounding clamp	high-grade stainless steel	**E40234**	SMxxxx

Accessories for flow sensors type SV

Description	Material	Order no.	For sensor type
Mounting plate	high-grade stainless steel	**E40249**	SVxxxx[1)]

[1)] version with display

Mounting plate for type SB

Description	Material	Order no.	For sensor type
Mounting plate	stainless steel	**EM0012**	SBxxxx

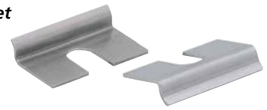
Mounting adapter for flow sensors type SA air

Description	Material	Order no.	For sensor type
Mounting adapters for flow sensors	stainless steel	**E43909**	SAxx2x

Process adapters for type SU

Process connection	Device connection	Material	Order no.	For sensor type
R 1/2	G 3/4	high-grade stainless steel	**E40178**	SU7xxx
1/2 NPT	G 3/4	high-grade stainless steel	**E40191**	SU7xxx
G 1/2	G 3/4	high-grade stainless steel	**E40214**	SU7xxx
G 3/4	G 3/4	high-grade stainless steel	**E40216**	SU7xxx
R 1/2	G 1	high-grade stainless steel	**E40179**	SU8xxx
R 3/4	G 1	high-grade stainless steel	**E40180**	SU8xxx
1/2 NPT	G 1	high-grade stainless steel	**E40192**	SU8xxx
3/4 NPT	G 1	high-grade stainless steel	**E40193**	SU8xxx
G 3/4	G 1	high-grade stainless steel	**E40215**	SU8xxx
G 1	G 1	high-grade stainless steel	**E40217**	SU8xxx
R 1	G 1 1/4	high-grade stainless steel	**E40205**	SU9xxx
1 NPT	G 1 1/4	high-grade stainless steel	**E40206**	SU9xxx

Angle bracket for type SU



Description	Material	Order no.	For sensor type
Mounting set 2 angle brackets	stainless steel	**E40166**	SUxxxx

Process adapters for flow sensors type SI, SA

Process connection	Device connection	Material	Order no.	For sensor type
G 1/2	M18	high-grade stainless steel	**E40096**	SI5xxx, SA5xxx
G 1/4	M18	high-grade stainless steel	**E40099**	SI5xxx, SA5xxx
G 1/2	M18	brass	**E40097**	SI5xxx, SA5xxx
G 1/4	M18	brass	**E40098**	SI5xxx, SA5xxx
G 1/2	progressive ring	high-grade stainless steel	**E40258**	SA4xxx
G 3/4	progressive ring	high-grade stainless steel	**E40259**	SA4xxx
R 1/2	progressive ring	high-grade stainless steel	**E40263**	SA4xxx
Clamp 1...1.5"	Aseptoflex-Vario	high-grade stainless steel	**E33201**	SI66xx, SI67xx, SI68xx
Varivent type F 1 "	Aseptoflex-Vario	high-grade stainless steel	**E33221**	SI66xx, SI67xx, SI68xx

The converter transforms IO-Link process values into two analogue signals 4...20 mA

Number of analogue outputs	Precision of analogue output	Protection rating	Order no.
2	± 0,25 %	IP 67 / IP 69K	**EIO104**

For more accessories see

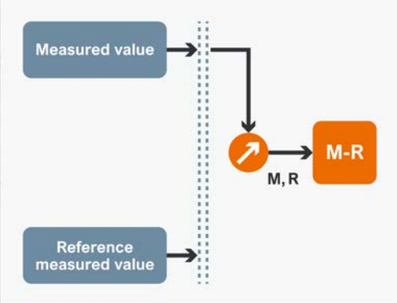
ifm.com

Discover the ifm calibration service

What does “calibration” mean?

Calibration is the act of determining and documenting, in a traceable manner, the deviations between a measuring instrument called device under test (DUT) and a reference device called reference standard.

The result of this comparison shows the measuring deviations at different measurement points and can be provided in absolute or relative form. The regular calibration of measurement instruments ensures the precision and reproducibility of the measurement data.



Learn more about the calibration service.

Why should measuring instruments be calibrated?

There are various reasons; however, all of them reflect the necessity:

- **Legal or company-specific regulations**, such as quality and energy management, stipulate regular calibration.
- The **accuracy** of any measurement deteriorates over the operating time due to temperature or pressure variations, shock and vibrations or mechanical loss.
- **Safety-relevant** as well as **environmental aspects** can be taken into account through measures of calibration.

Which calibrations are offered by ifm?

The ifm calibration laboratory offers ISO, A2LA and DAkkS calibrations for pressure, temperature, analytical and flow sensors. Newly bought sensors can be calibrated directly when you order them. It goes without saying that ifm also offers recalibrations for sensors already in use.

DAkkS and A2LA calibrations

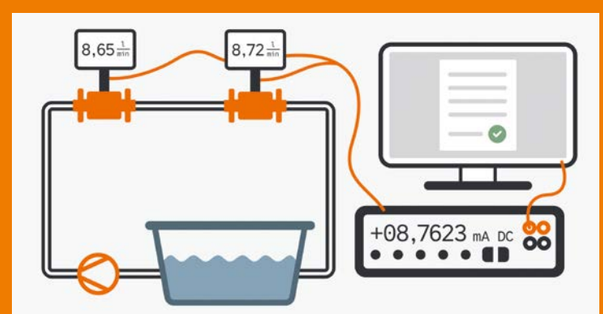
DAkkS and A2LA calibrations identify internationally comparable measurement results. The German accreditation body is considered the highest standard below the national standards, in the same way as the American Association for Laboratory Accreditation is ranked below the national American standards. The certificates are traceable to national standards of the PTB (national metrology institute of the Federal Republic of Germany) or other national standards, such as those of the National Institute of Standards and Technology. Calibrations are only performed by accredited laboratories. DAkkS procedures are regularly audited by the accreditation body to guarantee the calibration process according to a validated procedure.

ISO calibration

An ISO calibration may only be performed by laboratories with a certified quality assurance system according to DIN EN ISO 9001:2015.
This is the only way we can offer you high quality calibrations. The measuring equipment used for calibration is regularly recalibrated and traceable to the national standard of the PTB or other national standards.

A brief overview: calibration of water flow sensors

The reference measurement of flow sensors for the measurement of liquids is done with a reference device. During the reference measurement, the medium flows through the measuring instrument to be calibrated and another reference device that has been calibrated beforehand. The calibration is performed on the basis of 3 or 4 measurement points, which are distributed over the flow range. By default, the calibration is performed with factory settings using the analogue output (current) or, alternatively, visually using the display of the device or the analogue output (voltage).



Who says we only do hardware?

moneo. The all-you-want software for industrial evolution.

One thing is clear: proper industrial digitisation begins with the sensor and extends into the IT structure. If you are already using IO-Link in your plant, you have taken the first important step towards more efficiency and less unplanned downtime. And you are ready for the second step. You are ready to get even more out of your plant with the help of simple and ingenious software.

Turning values into added value

With moneo, you can easily access the entire IO-Link network. And, thanks to the logical tree structure, you will have quick and efficient access to each individual sensor at any time. As soon as your IO-Link network is integrated into moneo, values will no longer be just separate pieces of information. moneo makes values useful and transforms them into added value. For example, you can continuously monitor the flow in your production process and ensure the quality of your end product. The flow values can then be clearly displayed along with other relevant information in the cockpit. This gives you an overview of all the important values in your plant or process. If things become critical in your absence, for example because the flow quantity is outside the tolerances specified for the process or the vibration on a fan rotor is dangerously increasing, moneo will immediately alert and inform you by e-mail. This allows you to schedule maintenance in good time to keep things moving. In short: moneo will optimise your processes and ensure that they will be trouble-free.

A new kind of flexibility thanks to moneo

As you have seen, moneo leaves nothing to be desired. It is a great piece of software to begin with, but its actual extent will always depend on your specific requirements. You can, for example, simply begin with parameter setting and the cockpit function for one part of your plant and explore the possibilities of real-time maintenance later, when you are ready for the next step.

To put it in a nutshell: moneo offers the flexibility to simply grow with your requirements. The days of unmanageable, oversized and confusing software are over. It is time for simplicity, user-friendliness and ingenuity.
It is time for moneo!

We love it when a plan comes together

As a world market leader in automation technology, we closely follow our customers' requirements.

Discover our moneo use cases on ifm.com

www.moneo.ifm